

What is Claimed Is:

1. A method for automatically registering a sensed image with a reference image, said method comprising the steps
5 of:

generating a sensor image of a first scene with a sensor mounted on a platform;

accessing a reference image of a second scene, said reference image encompassing said sensor image;

10 identifying the portion of the reference image depicted in the sensor image;

defining an area of the reference image based on said reference image portion; and

conforming said sensor image and said reference image
15 area to a common perspective by transforming the perspective of at least one of said sensed image and said reference image area; and

matching said images of common perspective.

20 2. The method of claim 1 wherein said reference image is geocoded.

3. The method of claim 1 wherein the sensor image and reference image are of different internal geometry.

25 4. The method of claim 1 wherein the perspective of said reference image area is transformed to substantially the perspective of the sensor image.

30 5. The method of claim 1 wherein the perspective of the sensed image is transformed to substantially the perspective of the reference image area.

6. The method of claim 1 wherein both the sensor image and the reference image area are transformed to a common perspective.

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7. The method of claim 1 wherein the transforming step further comprises the step of enhancing the fidelity of the transformed image using a 3-D surface model of the scene.

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8. The method of claim 1 wherein the matching step further comprises the steps of:

determining the translation offset between the images of common perspective; and

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mapping locations in at least one of said sensor image and reference image by combining geometric transforming functions and functions representing said translation offset.

9. The method of claim 8 wherein said reference image is geocoded, said mapping step further comprising the step of:

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determining geocoded locations in the sensor image corresponding to the geocoding of said locations in the reference image.

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10. The method of claim 1 wherein the transforming step further comprises the step of:

removing perspective distortion from said reference image area to produce a substantially orthographic image of said area.

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11. The method of claim 10 wherein said removing step further comprises the step of:

performing an inverse perspective transform to remove said perspective distortion.

12. The method of claim 10 wherein the transforming step
5 further comprises the step of aligning the reference chip with the azimuth direction of the sensor.

13. A method of registering images, said method comprising the steps of:

10 generating a first image of a first scene;
generating a second image of a second scene, said second image encompassing said first image;
defining at least a portion of said second image depicting at least a portion of said first image;
15 conforming said first and second image portions to a common perspective; and
matching said image portions of common perspective.

14. The method of claim 13 wherein said at least a
20 portion of said second image defined to depict at least a portion of said first image is less than the entire second image.

15. The method of claim 14 wherein said defining step
25 further comprises defining at least a portion of said second image that depicts substantially the entirety of said first image.

16. The method of claim 13 wherein said second image is
30 geocoded, said method further comprising the step of:

determining geocoded locations in the first image corresponding to the geocoding of the second image.

17. The method of claim 13 wherein the first image portion and second image portion are of different internal geometry.

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18. The method of claim 13 wherein the perspective of said second image portion is transformed to substantially the perspective of the first image portion.

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19. The method of claim 13 wherein the perspective of the first image portion is transformed to substantially the perspective of the second image portion.

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20. The method of claim 13 wherein both the first image portion and the second image portion are transformed to a common perspective.

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21. The method of claim 1 wherein the transforming step further comprises the step of enhancing the fidelity of the transformed image using a 3-D surface model of the scene.

22. The method of claim 13 further comprising the steps of:

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determining any translation offset between the image portions of common perspective; and

mapping locations in at least one of said first image portion and reference image portion by combining geometric transforming functions and functions representing said translation offset.

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23. The method of claim 22 wherein one of said first and second image portions is geocoded, said mapping step further comprising the step of:

5 determining geocoded scene locations in the other of said image portions corresponding to the geocoding of the scene locations of said one image portion.

24. The method of claim 13 wherein the transforming step further comprises the step of:

10 removing perspective distortion from said second image portion to produce a substantially orthographic image of said second image portion.

25. The method of claim 24 wherein said removing step
15 further comprises the step of:

performing an inverse perspective transform to remove said perspective distortion.